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14 September 2000 (14.09.2000)

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60/154,140 15 September 1999 (15.09.1999) US  
60/169,155 6 December 1999 (06.12.1999) US(63) Related by continuation (CON) or continuation-in-part  
(CIP) to earlier applications:  
US 60/154,140 (CIP)  
Filed on 15 September 1999 (15.09.1999)  
US 60/169,155 (CIP)  
Filed on 6 December 1999 (06.12.1999)(71) Applicant (for all designated States except US): INCYTE  
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CA 94025 (US).(74) Agents: HAMLET-COX, Diana et al.; Incyte Genomics,  
Inc., 3160 Porter Drive, Palo Alto, CA 94304 (US).(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,  
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, TZ, UG, ZW), Eurasian  
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European  
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,  
IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG,  
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).**Published:**

--- with international search report

(88) Date of publication of the international search report:  
24 January 2002For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

WO 01/19860 A3

(54) Title: PROTEINS ASSOCIATED WITH CELL DIFFERENTIATION

(57) Abstract: The invention provides human proteins involved in cell differentiation (CDIFF) and polynucleotides which identify and encode CDIFF. The invention also provides expression vectors, host cells, antibodies, agonists, and antagonists. The invention also provides methods for diagnosing, treating, or preventing disorders associated with expression of CDIFF.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/25435

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C07K14/47 C12N15/63 C12N5/10 A01K67/027  
 C12P21/00 C07K16/18 C12Q1/68 A61K38/17 G01N33/53  
 A61P43/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	LIU ET AL.: "Isolation of 10 differentially expressed cDNAs in differentiated Nuro2a cells induced through controlled expression of the GD3 synthase gene" JOURNAL OF NEUROCHEMISTRY, vol. 72, 1999, pages 1781-1790, XP000992245	
A	- & LIU ET AL.: "Homo sapiens mRNA for ganglioside-induced differentiation associated protein 1" EMBL SEQUENCE DATABASE, 31 July 1998 (1998-07-31), XP002163336 HEIDELBERG DE Ac Y17849 the whole document ---	

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## ° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 March 2001

Date of mailing of the international search report

29.06.01

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
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Authorized officer

CEDER O.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/25435

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ABDELHAK S ET AL: "A HUMAN HOMOLOGUE OF THE DROSOPHILA EYES ABSENT GENE UNDERLIES BRANCHIO-OTO-RENAL (BOR) SYNDROME AND IDENTIFIES A NOVEL GENE FAMILY" NATURE GENETICS, US, NEW YORK, NY, vol. 15, no. 2, 1 February 1997 (1997-02-01), pages 157-164, XP002071634 ISSN: 1061-4036 cited in the application	
A	HOLMES G P ET AL: "DISCTINCT BUT OVERLAPPING EXPRESSION PATTERNS OF TWO VERTEBRATE SLIT HOMOLOGS IMPLIES FUNCTIONAL ROLES IN CNS DEVELOPMENT AND ORGANOGENESIS" MECHANISMS OF DEVELOPMENT, ELSEVIER SCIENCE IRELAND LTD, IE, vol. 79, 1998, pages 57-72, XP000912208 ISSN: 0925-4773 cited in the application	
X	NCI-CGAP: "wg81e08.x1 Soares NSF_F8_9W_0T PA P_S1 Homo sapiens cDNA cTone IMAGE:2371526_3' similar to TR:088741 088741 GANGLIOSIDE-INDUCED DIFFERENTIATION ASSOCIATED PROTEIN 1. ;, mRNA sequence" EMBL SEQUENCE DATABASE, 30 June 1999 (1999-06-30), XP002163337 HEIDELBERG DE Ac AI768135 the whole document	1,3,12
X	NCI-CGAP: "wg81f07.x1 Soares NSF_F8_9W_0T PA P_S1 Homo sapiens cDNA cTone IMAGE:2371525_3' similar to TR:088741 088741 GANGLIOSIDE-INDUCED DIFFERENTIATION ASSOCIATED PROTEIN 1. ;, mRNA sequence" EMBL SEQUENCE DATABASE, 30 June 1999 (1999-06-30), XP002163338 HEIDELBERG DE Ac AI768145 the whole document	1,3,12
		-/-

## INTERNATIONAL SEARCH REPORT

International Application No

P /US 00/25435

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HILLIER ET AL.: "au43h04.y1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2517559 5' similar to TR:088741 088741 GANGLIOSIDE-INDUCED DIFFERENTIATION ASSOCIATED PROTEIN 1. ;, mRNA sequence" EMBL SEQUENCE DATABASE, 12 July 1999 (1999-07-12), XP002163339 HEIDELBERG DE Ac AI815750 the whole document ---	1,3,12
X	HILLIER ET AL.: "au43h04.y1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2517559 3' similar to TR:088741 088741 GANGLIOSIDE-INDUCED DIFFERENTIATION ASSOCIATED PROTEIN 1. ;, mRNA sequence" EMBL SEQUENCE DATABASE, 12 July 1999 (1999-07-12), XP002163340 HEIDELBERG DE Ac AI815943 the whole document ---	1,3,12
X	FUJIWARA, T.: "Human fetal brain cDNA 5'-end GEN-413E12" EMBL SEQUENCE DATABASE, 29 September 1996 (1996-09-29), XP002163341 HEIDELBERG DE Ac C15942 the whole document ---	1,3,12
A	US 5 739 009 A (HAWKINS PHILLIP R ET AL) 14 April 1998 (1998-04-14) the whole document ---	1-28
A	WO 98 41634 A (INCYTE PHARMA INC ;WILDE CRAIG G (US); GOLI SURYA K (US)) 24 September 1998 (1998-09-24) the whole document ---	1-28
E	WO 00 58473 A (CURAGEN CORP ;LEACH MARTIN (US); SHIMKETS RICHARD A (US)) 5 October 2000 (2000-10-05) seq id nos 6299 and 6300 abstract; claims -----	1-19,22, 25-28

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 00/25435

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
2.  Claims Nos.: 20 21 23 24 because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-28 all partially

### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claim 18 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

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Continuation of Box I.1

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

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Continuation of Box I.2

Claims Nos.: 20 21 23 24

Claims 20,21,23,24 refers to agonists/antagonists identified by the method of claim 19 or 22 without giving a true technical characterization. Moreover, no such compounds are specifically defined in the description. It is only indicated that they "may include proteins" (such as antibodies), nucleic acids, carbohydrates, small molecules, or any other compound or composition which modulates the activity of CDIFF either by directly interacting with CDIFF or by acting on components of the biological pathway in which CDIFF participates." (page 9 lines 19-22; page 10 lines 19-23). In consequence the scope of said claims is ambiguous and vague, and their subject-matter is not sufficiently disclosed and supported (Art. 5 and 6 PCT). No search can be carried out for such claims whose wording is, in fact, a mere recitation of the results to be achieved.

Claims 8 and 32 refers to transgenic organisms and have only been searched as far as they concerns non-human transgenic organisms.

Since the sequence listing for Seq. Id. No. 18 has not been correctly submitted no search could be performed for claims 1-28 as far as they concern Seq. Id. No. 18.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-28 all partially

An isolated polypeptide and a polynucleotide encoding it; a recombinant polynucleotide containing a promoter sequence operatively linked to the above polynucleotide and cells transformed with it and transgenic organisms containing it; method for producing the polypeptide and an antibody binding to it; methods for detecting and using the polynucleotide; methods for screening for compounds that binds to and/or modulates (the activity of) the polypeptide or polynucleotide; limited to Seq. Id. Nos. 1 and 29, respectively.

2. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 2 and 30.

3. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 3 and 31.

4. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 4 and 32.

5. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 5 and 33.

6. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 6 and 34.

7. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 7 and 35.

8. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 8 and 36.

9. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 9 and 37.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

10. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 10 and 38.

11. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 13 and 41.

12. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 14 and 42.

13. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 15 and 43.

14. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 16 and 44.

15. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 17 and 45.

16. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 18 and 46.

17. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 19 and 47.

18. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 20 and 48.

19. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 21 and 49.

20. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 23 and 51.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

21. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 24 and 52.

22. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 25 and 53.

23. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 26 and 54.

24. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 27 and 55.

25. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 28 and 56.

26. Claims: 29-35 all partially

An isolated polynucleotide; a recombinant polynucleotide containing a promoter sequence operatively linked to the above polynucleotide and cells transformed with it and transgenic organisms containing it; method for producing a polypeptide; method for screening for compounds modulating the polynucleotide; methods for using the polynucleotide; limited to Seq. Id. Nos. 12 and 40, respectively.

27. Claims: 29-35 all partially

Subject matter as defined for invention 26 above, but limited to Seq. Id. Nos. 22 and 50.

## INTERNATIONAL SEARCH REPORT

'inform [redacted] patent family members

International Application No

PCT/US 00/25435

Patent document cited in search report	Publication date	Patent family member(s)			Publication date
US 5739009 A	14-04-1998	AU 5378498 A	03-07-1998		
		EP 0944721 A	29-09-1999		
		WO 9826067 A	18-06-1998		
WO 9841634 A	24-09-1998	AU 6867998 A	12-10-1998		
WO 0058473 A	05-10-2000	AU 3774500 A	16-10-2000		

## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION  
(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 06 June 2001 (06.06.01)
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International application No.  
PCT/US00/25435

International filing date (day/month/year)  
14 September 2000 (14.09.00)

Priority date (day/month/year)

15 September 1999 (15.09.99)

## Applicant

TANG, Y., Tom et al

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

06 April 2001 (06.04.01)

in a notice effecting later election filed with the International Bureau on:

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2. The election  was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Eric LESOT (Fax 338.87.40)  Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION  
(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 05 June 2001 (05.06.01)	To:  Commissioner US Department of Commerce United States Patent and Trademark Office, PCT 2011 South Clark Place Room CP2/5C24 Arlington, VA 22202 ETATS-UNIS D'AMERIQUE  in its capacity as elected Office
International application No. PCT/US00/25435	Applicant's or agent's file reference PF-0741 PCT
International filing date (day/month/year) 14 September 2000 (14.09.00)	Priority date (day/month/year) 15 September 1999 (15.09.99)
Applicant TANG, Y., Tom et al	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

06 April 2001 (06.04.01)

in a notice effecting later election filed with the International Bureau on:

\_\_\_\_\_

2. The election  was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Eugénia Santos (Fax 338.87.40)  Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>PF-0741 PCT</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/ US 00/ 25435</b>	International filing date (day/month/year) <b>14/09/2000</b>	(Earliest) Priority Date (day/month/year) <b>15/09/1999</b>
Applicant <b>INCYTE GENOMICS, INC. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of **8** sheets.

It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

contained in the international application in written form.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority in written form.  
 furnished subsequently to this Authority in computer readable form.  
 the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
 the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2.  Certain claims were found unsearchable (See Box I).

3.  Unity of invention is lacking (see Box II).

4. With regard to the **title**,

the text is approved as submitted by the applicant.  
 the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.  
 the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

as suggested by the applicant.  
 because the applicant failed to suggest a figure.  
 because this figure better characterizes the invention.

**1** None of the figures.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 00/25435

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: - because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
2.  Claims Nos.: 20 21 23 24 because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-28 all partially

### Remark on Protest

The additional search fees were accompanied by the applicant's protest.  
 No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claim 18 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

-----

Continuation of Box I.1

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

-----

Continuation of Box I.2

Claims Nos.: 20 21 23 24

Claims 20,21,23,24 refers to agonists/antagonists identified by the method of claim 19 or 22 without giving a true technical characterization. Moreover, no such compounds are specifically defined in the description. It is only indicated that they "may include proteins" (such as antibodies)", nucleic acids, carbohydrates, small molecules, or any other compound or composition which modulates the activity of CDIFF either by directly interacting with CDIFF or by acting on components of the biological pathway in which CDIFF participates." (page 9 lines 19-22; page 10 lines 19-23). In consequence the scope of said claims is ambiguous and vague, and their subject-matter is not sufficiently disclosed and supported ( Art. 5 and 6 PCT). No search can be carried out for such claims whose wording is, in fact, a mere recitation of the results to be achieved.

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The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-28 all partially

An isolated polypeptide and a polynucleotide encoding it; a recombinant polynucleotide containing a promoter sequence operatively linked to the above polynucleotide and cells transformed with it and transgenic organisms containing it; method for producing the polypeptide and an antibody binding to it; methods for detecting and using the polynucleotide; methods for screening for compounds that binds to and/or modulates (the activity of) the polypeptide or polynucleotide; limited to Seq. Id. Nos. 1 and 29, respectively.

2. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 2 and 30.

3. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 3 and 31.

4. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 4 and 32.

5. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 5 and 33.

6. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 6 and 34.

7. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 7 and 35.

8. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 8 and 36.

9. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 9 and 37.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

10. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 10 and 38.

11. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 13 and 41.

12. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 14 and 42.

13. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 15 and 43.

14. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 16 and 44.

15. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 17 and 45.

16. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 18 and 46.

17. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 19 and 47.

18. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 20 and 48.

19. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 21 and 49.

20. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 23 and 51.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

21. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 24 and 52.

22. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 25 and 53.

23. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 26 and 54.

24. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 27 and 55.

25. Claims: 1-28 all partially

Subject matter as defined for invention 1 above, but limited to Seq. Id. Nos. 28 and 56.

26. Claims: 29-35 all partially

An isolated polynucleotide; a recombinant polynucleotide containing a promoter sequence operatively linked to the above polynucleotide and cells transformed with it and transgenic organisms containing it; method for producing a polypeptide; method for screening for compounds modulating the polynucleotide; methods for using the polynucleotide; limited to Seq. Id. Nos. 12 and 40, respectively.

27. Claims: 29-35 all partially

Subject matter as defined for invention 26 above, but limited to Seq. Id. Nos. 22 and 50.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/25435

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC 7	C12N15/12	14/47	C12N15/63	C12N5/	A01K67/027
	C12P21/00	C07K16/18	C12Q1/68	A61K38/17	G01N33/53
	A61P43/00				

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>✓ LIU ET AL.: "Isolation of 10 differentially expressed cDNAs in differentiated Nuro2a cells induced through controlled expression of the GD3 synthase gene"            JOURNAL OF NEUROCHEMISTRY, vol. 72, 1999, pages 1781-1790, XP000992245</p> <p>✓ - &amp; LIU ET AL.: "Homo sapiens mRNA for ganglioside-induced differentiation associated protein 1"            EMBL SEQUENCE DATABASE, 31 July 1998 (1998-07-31), XP002163336            HEIDELBERG DE            Ac Y17849            the whole document</p> <p style="text-align: center;">---</p> <p style="text-align: center;">-/-</p>	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 March 2001

Date of mailing of the international search report

29.06.01

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Authorized officer

CEDER O.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/25435

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ABDELHAK S ET AL: "A HUMAN HOMOLOGUE OF THE DROSOPHILA EYES ABSENT GENE UNDERLIES BRANCHIO-OTO-RENAL (BOR) SYNDROME AND IDENTIFIES A NOVEL GENE FAMILY" NATURE GENETICS, US, NEW YORK, NY, vol. 15, no. 2, 1 February 1997 (1997-02-01), pages 157-164, XP002071634 ISSN: 1061-4036 cited in the application	
A	HOLMES G P ET AL: "DISCTINCT BUT OVERLAPPING EXPRESSION PATTERNS OF TWO VERTEBRATE SLIT HOMOLOGS IMPLIES FUNCTIONAL ROLES IN CNS DEVELOPMENT AND ORGANOGENESIS" MECHANISMS OF DEVELOPMENT, ELSEVIER SCIENCE IRELAND LTD, IE, vol. 79, 1998, pages 57-72, XP000912208 ISSN: 0925-4773 cited in the application	
X	NCI-CGAP: "wg81e08.x1 Soares NSF_F8_9W_0T_PA_P_S1 Homo sapiens cDNA cTone IMAGE:2371526-3' similar to TR:088741 088741 GANGLIOSIDE-INDUCED DIFFERENTIATION ASSOCIATED PROTEIN 1. ;, mRNA sequence" EMBL SEQUENCE DATABASE, 30 June 1999 (1999-06-30), XP002163337 HEIDELBERG DE Ac AI768135 the whole document	1,3,12
X	NCI-CGAP: "wg81f07.x1 Soares NSF_F8_9W_0T_PA_P_S1 Homo sapiens cDNA cTone IMAGE:2371525-3' similar to TR:088741 088741 GANGLIOSIDE-INDUCED DIFFERENTIATION ASSOCIATED PROTEIN 1. ;, mRNA sequence" EMBL SEQUENCE DATABASE, 30 June 1999 (1999-06-30), XP002163338 HEIDELBERG DE Ac AI768145 the whole document	1,3,12
		-/-

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 00/25435

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HILLIER ET AL.: "au43h04.y1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2517559 5' similar to TR:088741 088741 GANGLIOSIDE-INDUCED DIFFERENTIATION ASSOCIATED PROTEIN 1. ;, mRNA sequence" EMBL SEQUENCE DATABASE, 12 July 1999 (1999-07-12), XP002163339 HEIDELBERG DE Ac AI815750 the whole document ---	1,3,12
X	HILLIER ET AL.: "au43h04.y1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2517559 3' similar to TR:088741 088741 GANGLIOSIDE-INDUCED DIFFERENTIATION ASSOCIATED PROTEIN 1. ;, mRNA sequence" EMBL SEQUENCE DATABASE, 12 July 1999 (1999-07-12), XP002163340 HEIDELBERG DE Ac AI815943 the whole document ---	1,3,12
X	FUJIWARA, T.: "Human fetal brain cDNA 5'-end GEN-413E12" EMBL SEQUENCE DATABASE, 29 September 1996 (1996-09-29), XP002163341 HEIDELBERG DE Ac C15942 the whole document ---	1,3,12
A	US 5 739 009 A (HAWKINS PHILLIP R ET AL) 14 April 1998 (1998-04-14) the whole document ---	1-28
A	WO 98 41634 A (INCYTE PHARMA INC ;WILDE CRAIG G (US); GOLI SURYA K (US)) 24 September 1998 (1998-09-24) the whole document ---	1-28
E	WO 00 58473 A (CURAGEN CORP ;LEACH MARTIN (US); SHIMKETS RICHARD A (US)) 5 October 2000 (2000-10-05) seq id nos 6299 and 6300 abstract; claims -----	1-19,22, 25-28

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/25435

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5739009	A 14-04-1998	AU 5378498 A EP 0944721 A WO 9826067 A	03-07-1998 29-09-1999 18-06-1998
WO 9841634	A 24-09-1998	AU 6867998 A	12-10-1998
WO 0058473	A 05-10-2000	AU 3774500 A	16-10-2000